

(the verification is taken from reports of displaymen furnished this office monthly): temperature, 76.1 per cent; weather, 86.6 per cent.; temperature and weather, 81.3 per cent.

The percentage of verification of weather predictions for March on the D., G. H., and M. R'y, is 90.0 for weather, and 75.0 for temperature; on the C. & G. T. R'y, weather, 88.9, temperature, 86.6; P. H. & N. W. R'y, weather, 90.0, temperature, 87.0; M. C. R'y, weather, 88.0, temperature, 87.0; G. R. & I. R'y, weather, 88.1, temperature, 85.0; C. & W. M. R'y, weather, 86.0, temperature, 80.0; P. O. & P. A. R'y, weather, 90.0, temperature, 87.7.

Cold-wave warnings were issued by the Chief Signal Officer on the 2d at 7 p. m., and were followed by a fall of 35° by the morning of the 3d; on the 16th, at 10.30 a. m., and were followed by a fall of 22° 5 by 7 a. m. of the 17th; on the 20th, at 7 a. m., and were followed by a fall of 23° by 10 p. m. of the same

date; the warning of the 26th was not justified, and one cold wave passed on the 11th, for which no warning was issued.

Minnesota.—The percentage of verification of weather signals was 78 for weather and 81 for temperature.

Nebraska.—The percentages of correct predictions for the state are as follows: temperature, 88.2; weather, 90.0; mean, 89.1.

Nevada.—The verification of the Signal Service indications at Carson City was 89 per cent. for weather and 70 per cent. for temperature.

South Carolina.—The percentages of verifications of the weather and temperature predictions for the state was: for weather, 87.0; for temperature, 79.0.

Tennessee.—The percentage of verification of the daily weather and temperature predictions issued from the Signal Office at Washington to the various stations were, for the state: weather, 86.8 per cent.; temperature, 79.6 per cent.

STATE WEATHER SERVICES.

The following extracts are republished from reports for March, 1888, of the directors of the various state weather services:

The "Alabama Weather Service," P. H. Mell, jr., of the Agricultural and Mechanical College, Auburn, director:

The heavy precipitation on the 26th and 27th damaged property throughout the state to a considerable degree. All railroads were more or less injured and the trains on the trunk lines were stopped for several days. Bridges in many localities were swept away, and numerous manufacturing enterprises were forced to stop until the water subsided. The local wind storms accompanying this rain were quite severe in some places, unroofing houses and destroying fences and trees. Some people were injured, but no one was reported killed. This cyclone lasted for two days and the temperature was high during the entire period. Immediately after this storm it turned off quite cool, but a reaction soon set in and the days became warm and pleasant again. Rains were frequent throughout the month, with occasional thunder-storms. The average rainfall was 2.56 inches above the normal.

Frosts were frequent, and toward the latter part of the month quite damaging to the tender buds. At least two-thirds of the fruit crop has been destroyed, and vegetation generally is very backward. The last frost occurred on the 23d.

Summary.

Temperature (in degrees Fahr.).—Monthly mean, 53.8; highest monthly mean, 59.8, at Troy; lowest monthly mean, 47.7, at Gadsden; maximum, 88, at Newton, on 4th; minimum, 16, at Gadsden, on the 23d; range for state, 67; greatest monthly range, 60, at Gadsden; least monthly range, 44, at Livingston and Florence.

Precipitation, including melted snow (in inches).—Average for the state, 9.89; greatest, 13.48, at Union Springs; least, 6.50, at Newton.

Wind.—Prevailing direction, southeast.

The "Arkansas Weather Service," Prof. John C. Branner, Little Rock, director:

Temperature (in degrees Fahr.).—The mean temperature of the month was decidedly below the average, as shown by the reports from the following points with the number of years of comparison: Little Rock, 3.3 lower than an average of eight years; Lead Hill, 2.9 below six years; Washington, 3.6 below twenty years; Fort Smith, 2.4 below five years; Conway, 10.1; Osceola, 10.6; and Russellville 3.4 lower than last year. The highest temperatures were recorded on the 16th and 31st at nearly every station, and the lowest on the 11th and 12th, with but few exceptions. Frosts were of frequent occurrence during the entire month, the latest being reported on the 28th at Dallas and 29th at Fort Smith, Eureka Springs, and Washington.

Precipitation (in inches).—The rainfall was reported generally in excess to the amount of 4.30 at Helena, 3.55 at Washington, 1.58 at Conway, 1.14 at Fort Smith, 1.03 at Russellville, and less than an inch excess at Lead Hill, Eureka Springs, and Little Rock. Snows on the 5th were reported from Lonoke, Alexander, Lead Hill, Russellville, and Little Rock, and on the 10th, 20th, and 22d at Lead Hill and Eureka Springs, and 19th at Dallas.

The "Colorado Weather Service," Prof. F. H. Loud, Colorado Springs, director:

Summary.

Temperature (in degrees Fahr.).—Mean for state (twenty-one stations reporting), 30.6; highest monthly mean, 41.4, at Grand Junction; lowest monthly mean, 15.0, at Climax; maximum, 79.0, at Fort Morgan, on 31st; minimum—17.0, at Alma, on 26th; greatest monthly range, 39.4, at Pandora; least monthly range, 18.0, at Georgetown.

Precipitation, including melted snow (in inches).—Average for state (fifteen stations reporting), 0.62; greatest, 1.49, at ranch near Como; least, 0.14, at Saguash.

The "Monthly Review of the Illinois Weather Service," Col. Charles F. Mills, Springfield, director:

The temperature has been considerably below the average. In the northern division it was 4° 5 below; in the central, 3° 8, and in the southern, 4° 3. In the whole state it was 4° 2 below the average of ten years. Only once in ten years has the monthly mean for March been lower than that of the month just passed, in 1881, when the mean temperature was 84° 4.

The rainfall in the state during the month was considerably above the average. In the northern division it was 1.11 inches above the average for the previous ten years; in the central division it was 1.06 inches, and in the southern it was 1.29 inches above; while for the whole state it was 1.15 inches above the average for ten years.

The precipitation during January and February of the present year was considerably below the average, but March has supplied the deficiency and brought the rainfall of the three months up to the average.

Heavy rains prevailed through the state on the 25th and 26th, and the following unusually large rainfalls have been reported: 3.13 inches at Jordan's Grove; 2.10 inches at Benton; 2.06 inches at Peoria; 2.00 inches at Pana; 2.00 inches at Wapella; 2.00 inches at Prairieville; 2.00 inches at Flora; 2.00 inches at Mascouta, and 2.00 inches at Three Mile.

The "Indiana Weather Service," Prof. H. A. Huston, of Purdue University, Lafayette, director:

Although the temperature fell less low than in other years, a steady low temperature prevailing caused the mean temperature for the month to be below the normal for March at every station of observation, the deficiency ranging from —0° 2 at Connersville to —6° 3 at Logansport. Abrupt changes in temperature occurred on the 2d, 14th, 15th, 18th, 22d, 26th, 30th, and 31st. The lowest temperature for the month was noted everywhere on the 22d, and the highest at the greatest number of stations on the 19th; except at a few places in the southern portion of the state, the maximum temperature occurred on the 30th or 31st.

Except at Lafayette and Spiceland, the amount of precipitation was at all stations above the normal, the average excess for the state measuring 1.62 inches. It fell mostly in the form of rain, while the amount of snowfall, and the dates on which it fell, were limited.

The general state of the weather during the month has benefited crops and pasturage but little. Vegetation in general at the end of the month, in central and northern portions of the state, is less advanced than usually. Little sunshine, steady cool temperature, thawing during the day and freezing during the night, did not permit vegetation to recover readily.

The "Kansas Weather Service," Prof. J. T. Lovewell, Topeka, director:

Summary.

Temperature (in degrees Fahr.).—Monthly mean for the state, 37° 2; highest monthly mean, 43°, at Independence and Sedan; lowest monthly mean, 32°, at Tribune; absolute maximum, 90°, at Collyer, on the 17th; absolute minimum, —9°, at McAllister, on the 5th; range for state, 99°; greatest monthly range, 91°, at McAllister; least monthly range, 58°, at Rome; greatest daily range, 55°, at Collyer, on the 17th; least daily range, 2°, at Independence on the 24th, and at Tribune on the 25th.

Precipitation, including melted snow (in inches).—Average for the state, 2.00; greatest, 5.47, at Lawrence; least, 0.30, at Collyer and Winona.

Wind.—Prevailing direction, south.

The "Louisiana State Weather Service," in charge of R. E. Kerkam, Sergeant, Signal Corps, at New Orleans:

Temperature (in degrees Fahr.).—The highest temperature, 86, occurred at Liberty Hill on 31st; the lowest, 24, at Clinton on the 12th; monthly range of temperature 62.

Precipitation (in inches).—The precipitation for the month was about 1.50 in excess of the normal in all parts of the state. The heaviest rains reported are as follows: Natchitoches, 2.30, on the 9th; Vidalia, 3.25, on the 27th; Clinton, 3.50, on the 10th; Baton Rouge, 2.05, on the 19th; Grand Coteau, 2.74, on the 27th; Donaldsonville, 2.78, on the 19th; Saint Martinsville, 2.04, on the 10th; New Orleans, 2.02, on the 26th; Morgan City, 3.25, on the 27th.

Wind.—The prevailing direction of the wind was from the north.

The "Michigan Weather Service," N. B. Conger, Sergeant, Signal Corps, Lansing, director:

Temperature (in degrees Fahr.).—The temperature was below the normal in all sections during March. The greatest departure from the normal was in the upper peninsula, where it reached 9.1; the least in the central section,

where it reached $1^{\circ}.3$ below the normal. The highest temperature during the month, 73° , occurred at Bell Branch on the 19th; the lowest -32° , at Lathrop, on the 23d. The highest mean daily temperature for the month, 49° , occurred on the 19th, when it was 20 above the normal, and the lowest, 6° , occurred on the 22d, when it was 22 below the normal. Twenty-two stations report a minimum temperature of -10° , or lower, during the month; this low temperature occurred on the night of the 22d or morning of the 23d; the temperature reached the maximum on the 19th, and began to fall on the evening of the 20th; continued until the minimum was reached on the 23d.

Precipitation, including melted snow (in inches).—The average amount of precipitation for March, 2.72 , is 0.22 above the normal of thirteen years. The precipitation was above the normal in all sections, from 1.80 in the upper peninsula to 0.09 in the central section. Comparing the average precipitation of this month with the records of the past twelve years, it is found that the greatest average precipitation, 3.64 , occurred in 1882; the least, 1.35 , in 1887.

Summary.

Temperature (in degrees Fahr.).—Highest monthly mean, 30.6 , at Colon and Williamston; lowest monthly mean, 12.1 , at Lathrop; absolute maximum, 73° , at Bell Branch, on the 19th; absolute minimum, -32° , at Lathrop, on the 23d; range for the state, 105° ; greatest monthly range, 80° , at Fletcher and Lathrop; least monthly range, 49° , at North Marshall; greatest daily range, 64° , at Snowflake, on the 25th; least daily range, 2.9° , on the 1st, at Saint Louis.

Precipitation, including melted snow (in inches).—Average for the state, 2.72 ; greatest, 6.10 , at Sault Ste. Marie; least, 1.00 , at Mackinaw City.

Wind.—Prevailing direction, northwest.

The "Minnesota Weather Service," Prof. W. W. Payne, Northfield, director:

The weather has been unusually severe for an initial spring month. The temperature was considerably below the average, and the precipitation above, except in the locality of Saint Paul and Duluth, where there was a slight deficiency. An unusually large amount of snow remained on the ground at the close of the month. High winds were of frequent occurrence, but without dangerous gales. There was a comparative absence of serious snow blockades, although the drifting of snow on the 1st, 25th, and 26th caused slight delays to railroad traffic. The unusually large snowfall was not generally very favorable for logging operations.

Temperature (in degrees Fahr.).—The average for the state, 15.8 , is 9.7 below that of the corresponding month of 1887, $11^{\circ}.0$ below that of 1886, and 8.4 below that of 1885. At Saint Paul it was 9.8 below the normal of fifteen years; La Crosse, 8.1 below; Duluth, 7.9 below; Moorhead 6.4 below; and Saint Vincent, 5.9 below. This is the lowest mean temperature recorded for the month of March since the stations were established at La Crosse and Saint Paul. The highest mean temperature was reported from La Crosse, where it was 22.2 , while the lowest was 7.8 at Saint Vincent, thus showing a range between the northern and southern portions of the state of 14.4 . The warmer portions of the month were 8th and 9th, 13th to 15th, 17th to 20th, 26th to 31st. The highest temperature generally occurred during the third of these periods. The maximum for the month was 50.0 , reported on the 18th at Rolling Green and Pine River Dam. The mild weather of the latter portion of the month caused the snow to melt rapidly. The colder portions of the month were 3d to 6th, 10th to 12th, 21st and 22d. On these dates the minimum temperature was generally below zero. The greatest cold was experienced during the last of these terms, when the temperature fell to -30.0 at Pokegama Falls Dam and Pine River Dam. On the same date at Saint Vincent it was -29.3 ; Leech Lake Dam, -29.0 ; Argyle, -26.5 . The range of temperature for the state is 80.0 , while the greatest range for any station is also 80.0 , reported from Pine River Dam. The smallest ranges of temperature were reported in southern Minnesota, the lowest being 55.0 at Minneapolis.

Precipitation, including melted snow (in inches).—This has been mainly in the form of snow and unequally distributed, the greatest amount having fallen in the southeastern portion of the state, while the least fell in the northwestern and south-central portions. The average precipitation for the state is 1.79 . This has been above the average of March for the past three years in this state by the following amounts: 1.28 in 1885; 0.70 in 1886; 1.45 in 1887. At the close of the month from 18 to 36 inches of snow remained on the ground in the region of the "Great Woods," while in the southeast portion of the state it averaged 24 and in the southwestern from 6 to 14 . At the close of the corresponding months of the preceding three years snow had almost entirely disappeared, except in localities where there had been severe drifts. At La Crosse the precipitation was over two inches above the average of fifteen years; while at Saint Paul and Duluth it was slightly below.

The "Mississippi Weather Service," Prof. R. B. Fulton, of the University of Mississippi, Oxford, director:

Temperature (in degrees Fahr.).—Highest monthly mean, 58 , at Mobile, Artonish Plantation, Biloxi; lowest monthly mean, 50 , at University; absolute maximum, 86 , at Edwards, on the 26th; absolute minimum, 25 , at Starkville, on the 7th; range for state, 61 ; greatest monthly range, 57 , at Edwards; least monthly range, 20 , at Long Beach; greatest daily range, 41 , at West Point, on the 3d; least daily range, 0° , on the 7th, at Lamar.

Precipitation, including melted snow (in inches).—Greatest, 11.15 , at Starkville; least, 6.44 , at Utica.

The month just passed was marked by unusually heavy rainfalls and an abnormally low temperature. The average temperature for the state, 64 , is four degrees colder than that of the corresponding month of 1887. The maxi-

mum temperature was reached throughout the state on the 18th and 26th, and the minimum on the 7th and 12th. Three cold-wave warnings were received during the month, all of which were verified. The average rainfall for the state, 8.50 inches, is 5.60 inches in excess of the average for March, 1887.

The low temperature and excessive precipitation during the past month have retarded farming operations, and the crops are very backward as compared with former years. The heavy rains have done considerable damage.

The "Missouri Weather Service," Prof. Francis E. Nipher, of Washington University, Saint Louis, director:

The highest reported temperature was 90° , at Pro Tem. The lowest, 1° , at Oregon. The average of maximum temperatures was $77^{\circ}.6$, and the average of minimum $11^{\circ}.3$, making an average monthly range of $66^{\circ}.3$.

The average precipitation was 3.95 inches, which was 1.23 inches above the normal for February. The greatest amount reported was 6.67 inches, at Harrisonville, and the least was 1.76 inches at Steelville. The precipitation was unevenly distributed, the western and central portions of the state having excessive rains, while in the southern portions of the state there was a deficiency.

The "Nebraska Weather Service," Prof. Goodwin D. Swezey, of Doane College, Crete, director:

The month has been one of low mean temperature, but with considerable range of extremes and with abundant precipitation, more than usual of it falling as rain rather than snow, and not quite as well distributed through the month as usual.

Precipitation.—The portion of the state receiving decidedly the largest rainfall is the southeast section, in which the precipitation averaged $1\frac{1}{2}$ inches, and reached from and over that amount for a strip of country extending from Saline county northeast to Washington county. For the northeast section and lower Loup region the precipitation averaged about $2\frac{1}{2}$ inches, and for the Republican, Niobrara, and upper Platte regions somewhat over an inch, although falling below one inch for the extreme western end of the state. The snowfall was $4\frac{1}{2}$ inches, being about the normal amount for March.

Temperature.—The mean temperature of March for the past eleven years has ranged from $29^{\circ}.2$ to $46^{\circ}.8$; for the past March it has been $29^{\circ}.5$. The highest temperatures during the same period have ranged from 55° to 86° , and the lowest from 22° to -15° . The maximum of the past month was 80° , and the minimum -15° .

The "Nevada Weather Service," Prof. Charles W. Friend, Carson City, director:

The mean pressure for March was a little below the normal. The highest occurred at all stations on the 11th, and the lowest on the 8th. The mean temperature was also somewhat below the normal. The highest temperature reported, $76^{\circ}.5$, occurred at Reno on the 17th; and the lowest, -4° , at Ely, on the 4th. In the eastern part of the state the highest temperature occurred in the second half of the month, and in the western part in the first half. Throughout the whole state the lowest temperature occurred from the 1st to 4th.

The rainfall has been generally much below the normal. In the southeastern part of the state, however, the precipitation was fully equal to the average for the month of March, Pioche reporting 2.40 inches and Ely 2.08 inches. At the former place the total depth of snowfall was 20.5 inches. From the 1st to the 9th, inclusive, precipitation was pretty general throughout the state. During the rest of the month the weather was mostly mild, pleasant and dry, with only occasional light rains.

Temperature (in degrees Fahr.).—The highest temperature, 71.8 , occurred on the 12th and 22d; the lowest, 13.1 , on the 1st. The range for the month was 58.7 .

Precipitation (in inches).—The total precipitation was 0.54 , or 1.29 below the normal. Light snow fell from the 1st to the 5th, inclusive; light rain on the 13th, 14th, 30th, and 31st. The deficiency of precipitation since January 1, 1888, is 2.86 ; deficiency since September 1, 1887, is 5.64 .

The "New England Meteorological Society," Prof. Wm. H. Niles, of the Institute of Technology, Boston, Massachusetts, president:

The month can be conveniently considered in six divisions: (1) 1st-11th. In this period the pressure was generally above the normal, and cool, fair weather prevailed, but with occasional local snows, as a low area remained persistently off the coast of Newfoundland. Minimum temperatures were noted on the 2d and 7th. (2) 12th-14th. On these days heavy snow and rain occurred, as a severe cyclone reached New England from the southwest, and a cold wave from the northwest. (3) 15th-20th. Fair weather prevailed on these days, but the pressure was below the normal until the 18th (a low area continuing off Newfoundland) when it rose and temperatures near or below zero occurred on the 19th. (4) 21st-23d. Heavy rain and snow occurred on these days, during the passage of a cyclone from the Lakes over New England. (5) 24-25th. The pressure rose to its maximum for the month, 30.6 inches, and fair, cool weather prevailed. (6) 26th-31st. These days were stormy, with general rain or snow, dominated by three depressions. The first developed in the southwest and moved northeasterly into the Lake region and Canada on the 26th; on the 28th a barometric trough, with several storm-centres, extended from the Gulf of Mexico to Canada, which, by the 30th, had resolved itself into a single centre in Saint Lawrence Bay, while the third depression moved easterly across New England from the Lake region on the 31st.

The precipitation for the month was much in excess of the average for

March on account of the heavy amount recorded between the 12th and 14th. The mean temperature was 2° 5 below the monthly average.

Summary.

Temperature (in degrees Fahr.).—Monthly mean, 28.9 (one hundred and one stations); highest monthly mean, 33.4, at Plymouth, Mass.; lowest monthly mean, 20.1, at Chelsea, Mass.; absolute maximum, 63, at Stratford, Conn., on the 28th; absolute minimum, -23, at Berlin Falls, N. H., on the 19th; range for New England, 86; greatest monthly range, 76, at Stratford, Conn., and West Milan, N. H.; least monthly range, 37, at Block Island, R. I.; greatest daily range, 66, at West Milan, N. H., on the 19th; least daily range, 0, at Woonsocket, R. I., on the 29th.

Precipitation, including melted snow (in inches).—Average for New England, 5.59 (one hundred and twenty stations); greatest, 9.71, at Uncasville, Conn.; least, 2.79, at Weir's Bridge, N. H.

Wind.—Prevailing direction, northwest (twelve stations).

The "New Jersey Weather Service," Prof. George H. Cook, of the Agricultural College, New Brunswick, director:

Temperature (in degrees Fahr.).—The average temperature for the state for the month, 32.8, is 0.8 below the average for the corresponding month of 1887, and 4.2 below the normal of a great number of years. At Newark, the record makes the mean temperature of March for the last forty-four years 37.4, which shows a deficiency of 4.7. Highest monthly mean, 35.9, at Salem; lowest monthly mean, 30.2, at Union; maximum, 72.0, at Readington, on the 31st; minimum, 4.0 below zero, at Paterson, on the 13th; range for the state, 7.60; greatest monthly range, 66.0, at Readington; least monthly range, 56.0, at Newark; greatest daily range, 42.0, at Gillette, on the 20th; least daily range, 1.0, at Hanover, on the 16th. Mean relative humidity, 79.8.

Precipitation, including melted snow (in inches).—Average for the state, 5.71; greatest, 8.22, at Trenton; least, 3.75, at Salem.

Prevailing direction of wind, northwest.

The "North Carolina Weather Service," Dr. Herbert Battle, of Raleigh, director:

Temperature (in degrees Fahr.).—Monthly mean, 47.6; highest monthly mean, 51.4, at Wilmington; lowest monthly mean, 42.7, at Lynchburg, Va.; maximum, 80.5, at Chattanooga, Tenn., on the 31st; minimum, 14.1, at Norfolk, Va., on the 14th; range for the state, 66.4; greatest monthly range, 64.5, at Davidson College; least monthly range, 42.0, at Salisbury; greatest mean daily range, 29.0, at Salem; least mean daily range, 13.1, at Hatteras.

Precipitation, including melted snow (in inches).—Average for the state, 6.23; greatest, 8.73, at Chapel Hill; least, 4.22, at Knoxville, Tenn.

Wind.—Prevailing directions, northwest and southwest.

The "Ohio Meteorological Bureau," Prof. B. F. Thomas, of the Ohio State University, Columbus, president; Charles E. Kilbourne, Secretary:

Temperature (in degrees Fahr.).—The mean temperature for the state is 34.2, which is 0.6 below the mean; the highest, 77, occurred at Portsmouth on the 20th, and the lowest, -6.2, at Wauseon on the 23d; the mean daily range for the state was 19; the greatest daily range was 45, at Hanging Rock on the 19th, and the least, 2, on the 25th at Youngstown and on the 28th at North Lewisburg and Cleveland (Hyde).

Humidity.—The mean relative humidity, 79.5 per cent., was 1.1 per cent. above the mean.

Precipitation, including melted snow (in inches).—The mean for the state, 3.54, is 1.07 above the mean for the past six years, leaving the deficiency for the year to April 1st 1.19; the greatest monthly rainfall was 5.65, at Paulding, and the least, 1.47, at Youngstown; the greatest daily rainfall, 1.46, occurred at Greenville on the 26th.

Cold-wave signals were ordered from Washington on the 16th, 20th, and 26th; the signals of the 20th and 26th were generally reported as justified, while that of the 16th was reported as justified at a few stations only; a decided cold wave occurred on the 3d.

"Oregon Weather Service," report prepared by B. S. Pague, Sergeant, Signal Corps, Roseburg, Oregon:

The marked characteristics of the month were the deficiency in temperature throughout the state, the fair weather, and the deficiency in precipitation in the northern part of the state.

Temperature.—The mean temperature of the state for the month was 42° 6 below the normal. It was below the normal in all sections, ranging from 0° 4 below at Roseburg, to 6° 5 below at Linkville. The highest mean temperature, 47° 2, was reported from Roseburg; the lowest mean, 34° 0, at Fort Klamath; the highest maximum temperature, 75°, was reported from Ashland; the lowest minimum, -3°, reported from Fort Klamath.

Precipitation (in inches).—The precipitation was below the normal in the northern part of the state, and nearly normal in the southern part. The greatest deficiency of precipitation for the month is at Portland, where it amounted to 3.47. For the season from July 1, 1887, to April 1, 1888, the precipitation is below the normal in all sections, ranging from 46 per cent. below at Lakeview, to 6 per cent. below at Eola.

The "Pennsylvania State Weather Service," report prepared under the direction of the Franklin Institute, Philadelphia, by Sergeant T. F. Townsend, Signal Corps:

Temperature (in degrees Fahr.).—The mean temperature for Pennsylvania for the month was 31.1, which is from 2 to 5 below the March average. The greatest departures occurred in the eastern portion of the state. The extreme low temperatures were not absolutely lower than usual, but they were of longer duration. The unusual cold, the numerous cloudy and stormy days, the severe storm of the 11th and 12th have all combined to make the past month exceptionally disagreeable. The minimum temperatures occurred on the 6th and 13th. The lowest are: Eagles Mere, -6.0; Bernice, -5.5; Drifton, -5.0; Dyberry, -5.0; and Montrose, -4.0. The maxima were during the latter part of the month, most of which were noted on the 20th, 21st, 30th, and 31st. The highest are Uniontown, 72.0; Pittsburg, 71.5; Philadelphia, 70.0; York, 69.0; and New Castle, 69.0.

Precipitation, including melted snow (in inches).—The average precipitation was 3.55. This amount was unevenly distributed, much the larger portion falling over the eastern section of the state, causing an excess, and leaving a deficiency in the western counties. The greatest precipitation occurred on the 11th, 12th, 21st, and 26th. The largest totals for the month are West Chester, 6.39; Coatesville, 6.28; Philadelphia, 5.42; Swarthmore, 5.34; and Pottstown, 5.35.

The "South Carolina Weather Service," Hon. A. P. Butler, Com'r of Agriculture for South Carolina, Columbia, director:

This month is noted for its heavy rainfall; the greatest amount of precipitation occurred in the northern counties, and fell during the latter part of the month. The average amount for the state was 6.71 inches against 1.85 for March, 1887, an increase of four and three-quarter inches. A portion of the month was unfavorable for farming operations.

Summary.

Temperature (in degrees Fahrenheit).—Highest monthly mean, 57.1, at Hardeeville; lowest monthly mean, 47.7, at Kirkwood; maximum, 80.0, at Black's, Cedar Springs, and Hardeeville, on the 31st; minimum, 19.0, at Winnsborough, on the 22d; range for state, 61.0; greatest monthly range, 60.0, at Cedar Springs; least monthly range, 38.0, at Orangeburg; greatest daily range, 43.0, at Cedar Springs, on the 15th; least daily range, 0.1, on the 19th at Clinton.

Precipitation, including melted snow (in inches).—Greatest, 10.05, at Spartanburg; least, 2.87, at Hardeeville.

Wind.—Prevailing direction, southwest.

The following is an extract from the report of the "Meteorological Department of the State (Tennessee) Board of Health," prepared under direction of J. D. Plunket, M. D., President of the State Board of Health, by H. C. Bate, Signal Corps, Assistant, Nashville:

The month of March, with the exception of the first decade, had the usual features of high winds, electric storms, and, in many sections, an abnormally great rainfall. Altogether, it was a very disagreeable month.

The mean temperature was 46° 7, about the March average for the past six years. The highest temperature was 80° 5, recorded on the 31st, and was only half a degree below the highest March maximum during the past six years; the lowest was 12°, recorded on the 23d, and was 6° below the March minimum of last year, and 7° above that of 1885; the highest temperatures were recorded on the 18th, 20th, and 31st, and the lowest on the 8th and 11th in the middle and western divisions, and on the 23d in the eastern division. Cold-wave warnings were received on the 2d, 16th, 19th, 26th, and 27th, and were verified, except that of the 16th at Fayetteville and Gallatin, in the middle division, and Mason, in the western division, that of the 19th at Mason, and that of the 26th at Fayetteville.

The mean precipitation for the state was 6.02 inches, which was about an inch above the March mean for the past six years, but nearly two inches less than that in 1884; of this amount the eastern division received an average of four and three-fourths inches; the middle division seven inches; and the western division nearly six inches; the greater portion of the rain fell during the five days from the 25th to the 29th, inclusive. The rain of the 25-26th was one of the greatest known in the state, an average depth of 2.32 inches being recorded for the entire state. In many localities this was the greatest ever known, and was very destructive to fences along the water-courses, and to plowed lands. The rainfall was particularly heavy in the western portion of the middle division, and many great local daily falls were reported, notably at Lawrenceburg, where a fall of 4.71 inches was recorded for the twenty-four consecutive hours ending on the 26th; at Nunnally, 4.01 inches; at Ashwood, 3.58 inches; at Hohenwald, 3.52 inches; and at Savannah, 3.22 inches. In other portions of the middle division were heavy falls, as at Fayetteville, 3.23 inches; Cookeville, 3.00 inches; Fostoria, 3.58 inches; Watkins, 2.50 inches; and at Kingston Springs, 2.40 inches. The greatest monthly fall was 9.90 inches, reported at Lawrenceburg, and the least, 2.12 inches, reported at Jonesborough. The 10th, 20th, 27th, and 28th were also days of heavy rainfall. Most of the rains were general, and those of the 5th, 11th, and 22d were accompanied with snow in the eastern and middle divisions. The 1st, 7th, 8th, 9th, 14th, 15th, 16th, 18th, 23d, and 31st were reported without measurable precipitation. Snow fell at most of the stations in the state, but mostly in the eastern division; the greatest depth reported was 1.75 inches, at Newport. At many places the fall was very light, not sufficient to measure. Frosts were reported on twenty-one days, the 1st to 4th, 17th, 24th to 28th being reported free from frost. The frosts of the 8th, 11th, 12th, 15th, 16th, and 23d were heavy, the others generally light. Hail fell in a few localities on the 20th, 26th, and 27th.